

1 **Amendment to the Claims**

2 Please amend Claims 2, 55, and 57 and cancel 74, 76-78, and 98 as follows:

3 1. (Canceled)

4 2. (Currently Amended) A physiological training and evaluation simulator suitable for training
5 and testing personnel, comprising:

6 (a) a simulated physiological structure; and

7 (b) an evaluation circuit including a conductive elastomer, the conductive
8 elastomer enhancing the realism of the simulated physiological structure, ~~the conductive elastomer~~
9 the evaluation circuit exhibiting a self-healing ability with respect to punctures not exhibited by
10 evaluation circuits including conductive elastomers based on a metal foil combined with an
11 elastomer, the conductive elastomer being configured as a portion of the simulated physiological
12 structure, said evaluation circuit being configured to provide an electrical signal relating to a
13 simulated procedure being performed on the simulated physiological structure, the electrical signal
14 originating from the portion of the simulated physiological structure including the conductive
15 elastomer without requiring:

16 (i) an electrical current to be provided by an instrument placed in contact
17 with the evaluation circuit during the simulated procedure; or

18 (ii) the use of an electrically conductive instrument to electrically couple
19 portions of the evaluation circuit together.

20 3. (Canceled)

21 4. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
22 wherein the conductive elastomer comprises a conductive carbon dispersed in an elastomeric matrix.

23 5. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
24 wherein the conductive elastomer comprises a metallic powder dispersed in an elastomeric matrix.

25 6. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
26 wherein the evaluation circuit comprises a capacitance based sensor, and the signal corresponds to a
27 magnitude of the applied pressure.

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1 7. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
2 wherein the evaluation circuit is configured to provide the signal when said portion of the simulated
3 physiological structure including the conductive elastomer is touched by a user of the physiological
4 training and evaluation simulator.

5 8. (Original) The physiological training and evaluation simulator of Claim 7, wherein the
6 evaluation circuit comprises a capacitance sensitive switch.

7 9. (Previously Presented) The physiological training and evaluation simulator of Claim 7,
8 wherein the evaluation circuit comprises a resistance sensitive switch.

9 10. (Original) The physiological training and evaluation simulator of Claim 7, wherein the
10 evaluation circuit comprises a radio sensitive switch.

11 11. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
12 wherein the evaluation circuit is configured to provide the signal when a manipulation of said portion of
13 the simulated physiological structure including the conductive elastomer causes the evaluation circuit to
14 close.

15 12. - 13. (Canceled)

16 14. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
17 wherein the evaluation circuit is incomplete at a gap in the evaluation circuit, and wherein the
18 evaluation circuit is completed when adjacent ends of the evaluation circuit are coupled together to
19 complete the circuit.

20 15. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
21 wherein the evaluation circuit is configured to provide the signal when a manipulation of said portion of
22 the simulated physiological structure including the conductive elastomer causes the evaluation circuit to
23 open.

24 16. (Canceled)

25 17. (Original) The physiological training and evaluation simulator of Claim 2, further comprising
26 a sensor coupled with the evaluation circuit, and the evaluation circuit is configured to provide the signal
27 when wherein the sensor indicates a change in a physical property has been detected.

28 18. (Previously Presented) The physiological training and evaluation simulator of Claim 17,
29 wherein the sensor is configured to detect a change in temperature.

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1 19. (Previously Presented) The physiological training and evaluation simulator of Claim 17,
2 wherein the sensor is a chemical sensor.

3 20. (Original) The physiological training and evaluation simulator of Claim 2, further comprising
4 additional evaluation circuits, each additional evaluation circuit comprising a conductive elastomer,
5 wherein each additional evaluation circuit is configured to provide a signal when a different portion of the
6 simulated physiological structure is manipulated during a procedure performed on the simulated
7 physiological structure.

8 21. (Previously Presented) The physiological training and evaluation simulator of Claim 2,
9 further comprising an indicator coupled to the evaluation circuit, such that in response to the signal the
10 indicator provides an indication relating to the performance of the simulated procedure.

11 22. (Original) The physiological training and evaluation simulator of Claim 21, wherein the
12 indicator comprises a light source, light emitted by the light source providing feedback regarding the
13 performance of the procedure.

14 23. (Original) The physiological training and evaluation simulator of Claim 21, wherein the
15 indicator comprises a meter, a change in the meter providing feedback regarding the performance of the
16 procedure.

17 24. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
18 simulated physiological structure is a simulated human tissue structure.

19 25. (Original) The physiological training and evaluation simulator of Claim 24, wherein the
20 simulated human tissue structure comprises:

21 (a) at least one simulated membranous layer comprising at least one elastomeric
22 layer; and

23 (b) at least one simulated sub-membranous layer comprising at least one elastomeric
24 layer underlying a first membranous layer.

25 26. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
26 evaluation circuit is implemented in three dimensions.

27 27. (Original) The physiological training and evaluation simulator of Claim 26, wherein the
28 evaluation circuit is implemented as a three-dimensional grid.

29 28. (Original) The physiological training and evaluation simulator of Claim 27, wherein the
30 three-dimensional grid encompasses a majority of the simulated physiological structure.

1 29. (Original) The physiological training and evaluation simulator of Claim 2, wherein said
2 simulated physiological structure includes a plurality of integral fluid channels, and wherein the
3 evaluation circuit formed of the conductive elastomer is incorporated into at least some of the integral
4 fluid channels.

5 30. (Original) The physiological training and evaluation simulator of Claim 29, wherein the
6 evaluation circuit is incorporated into a wall of at least some of the fluid channels, such that the evaluation
7 circuit provides the signal if such a wall is damaged during the simulated procedure.

8 31. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
9 evaluation circuit couples to a processor configured to manipulate the signal.

10 32. (Original) The physiological training and evaluation simulator of Claim 31, wherein the
11 simulated physiological structure comprises a physiological control element configured to produce a
12 simulated physiological response in the simulated physiological structure, the physiological control
13 element being coupled to the evaluation circuit so that the processor uses the evaluation circuit to control
14 the physiological control element.

15 33. (Original) The physiological training and evaluation simulator of Claim 32, wherein the
16 physiological control element comprises at least one of a servo and a pump.

17 34. (Original) The physiological training and evaluation simulator of Claim 31, wherein the
18 evaluation circuit is implemented with a plurality of branches that extend throughout at least a portion of
19 the simulated physiological structure where the simulated procedure will be performed, so that by
20 monitoring the plurality of branches, the processor determines a three-dimensional location of an
21 instrument during the simulated procedure.

22 35. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
23 simulated physiological structure comprises a simulated organ.

24 36. (Original) The physiological training and evaluation simulator of Claim 35, wherein the
25 evaluation circuit comprises a pressure sensor disposed at a periphery of the simulated organ.

26 37. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
27 evaluation circuit is implemented as a neural network that substantially corresponds to a neural network in
28 a physiological structure upon which the simulated physiological structure is modeled.

29 38. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
30 simulated physiological structure comprises a simulated joint.

1 39. (Original) The physiological training and evaluation simulator of Claim 38, wherein the
2 evaluation circuit is disposed proximate to a location on the simulated joint at which a medical device will
3 be employed in the simulated medical procedure, to evaluate whether a person performed the procedure
4 properly.

5 40. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
6 simulated physiological structure comprises a simulated bone.

7 41. (Original) The physiological training and evaluation simulator of Claim 40, wherein the
8 evaluation circuit is disposed at a periphery of the simulated bone, proximate a location on the simulated
9 bone at which a medical device will be employed in the simulated medical procedure, to evaluate whether
10 a person performed the procedure properly.

11 42. (Canceled)

12 43. (Original) The physiological training and evaluation simulator of Claim 2, wherein the
13 physiological training and evaluation simulator comprises a surgical trainer, and the simulated
14 physiological structure comprises at least one of a simulated human tissue structure and a simulated organ
15 included in the surgical trainer.

16 44. (Original) The physiological training and evaluation simulator of Claim 43, wherein the
17 surgical trainer comprises:

18 (a) at least one simulated structure corresponding to an internal anatomical
19 structure of a human body;

20 (b) an exterior cover encompassing a substantial portion of the surgical trainer, the
21 exterior cover having at least one predefined opening defining an operative site, so that each opening is
22 disposed adjacent to a different structure, to facilitate access to said structure; and

23 (c) the simulated human tissue structure is incisable, and is disposed proximate to
24 each predefined opening, such that access to said at least one structure via the adjacent predefined
25 opening requires making an incision in said simulated human tissue structure, an exterior surface of each
26 simulated human tissue structure being substantially flush with respect to an outer surface of the exterior
27 cover, each simulated human tissue structure being removable to be replaced after use, said simulated
28 human tissue structure comprising a plurality of layers, said plurality of layers generally corresponding to
29 layers of tissue found in a human being at a location corresponding to the operative site, and at least one
30 of the plurality of layers including the conductive elastomer.

1 45.-54. (Canceled)

2 55. (Currently Amended) A medical training simulator suitable for medical skills training and
3 evaluation, the medical training simulator comprising a simulated physiological structure and an
4 evaluation circuit including a conductive elastomer, the ~~conductive elastomer~~ evaluation circuit exhibiting
5 a self-healing ability with respect to punctures not exhibited by evaluation circuits including conductive
6 ~~elastomers based on~~ a metal foil combined with an elastomer, said conductive elastomer comprising a
7 first elastomeric layer, a second elastomeric layer, and a conductor encapsulated by the first and second
8 elastomeric layers, at least a segment of the evaluation circuit including the conductive elastomer being
9 configured as a portion of the simulated physiological structure, wherein the evaluation circuit is
10 configured to provide data via an electrical signal originating from the portion of the simulated
11 physiological structure in response to at least one of the following conditions:

12 (a) a manipulation of the portion of the simulated physiological structure causes the
13 conductive path of the evaluation circuit to be opened;

14 (b) a sensor coupled to the evaluation circuit detects a change in a non-electrical
15 physical property, wherein the sensor is disposed within the simulated physiological structure; and

16 (c) an instrument is placed in proximity to at least a portion of the simulated
17 physiological structure, but not in contact with any portion of the evaluation circuit, the instrument
18 not being configured to introduce an electrical current into the evaluation circuit.

19 56. (Previously Presented) The medical training simulator of Claim 55, wherein the
20 evaluation circuit is distributed throughout the portion of the simulated physiological structure as a
21 three dimensional grid.

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1 57. (Currently Amended) A method for making a medical training simulator suitable for medical
2 skills training and evaluation, the method comprising the steps of:

3 (a) determining a physiological structure that the medical training simulator is to
4 simulate;

5 (b) determining a simulated medical procedure that will be performed on a simulated
6 physiological structure corresponding to the physiological structure; and

7 (c) constructing a medical training simulator including:

8 (i) a simulated physiological structure corresponding to the physiological
9 structure of step (a); and

10 (ii) an evaluation circuit comprising a conductive elastomer, at least some of
11 the conductive elastomer being configured as a portion of the simulated physiological structure, the
12 ~~conductive elastomer~~ evaluation circuit exhibiting a self-healing ability with respect to punctures not
13 exhibited by evaluation circuits including ~~conductive elastomers based on~~ a metal foil combined with
14 an elastomer, the evaluation circuit being configured to provide feedback relating to the simulated
15 medical procedure of step (b), such that the evaluation circuit provides the feedback without the use of an
16 electrically conductive instrument configured to introduce an electrical current into the evaluation circuit
17 in the portion of the simulated physiological structure or provide a conductive path between different
18 segments of the evaluation circuit in the portion of the simulated physiological structure during the
19 simulated medical procedure, the feedback comprising an electrical signal originating from the evaluation
20 circuit in the portion of the simulated physiological structure.

21 58. (Previously Presented) The method of Claim 57, wherein the step of constructing the medical
22 training simulator comprises the step of incorporating the evaluation circuit proximate to a location on the
23 simulated physiological structure at which the simulated medical procedure is performed, to evaluate if a
24 person performed the simulated medical procedure properly.

25 59. (Original) The method of Claim 58, wherein the step of applying the evaluation circuit
26 comprises the step of incorporating the evaluation circuit proximate to a periphery of the simulated
27 physiological structure.

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1 60. (Previously Presented) The method of Claim 57, wherein the step of constructing the medical
2 training simulator comprises the step of configuring the evaluation circuit to provide data in response to at
3 least one of the following conditions:

- 4 (a) the portion of the simulated physiological structure is manipulated;
- 5 (b) pressure is applied to the portion of the simulated physiological structure;
- 6 (c) the portion of the simulated physiological structure is touched;
- 7 (d) a manipulation of the portion of the simulated physiological structure causes the
8 evaluation circuit to close;
- 9 (e) a manipulation of the portion of the simulated physiological structure causes the
10 evaluation circuit to open;
- 11 (f) a sensor coupled to the evaluation circuit detects a change in a physical property;
- 12 and
- 13 (g) an instrument is placed in proximity to the portion of the simulated physiological
14 structure.

15 61. (Previously Presented) The method of Claim 57, wherein the step of constructing the medical
16 training simulator comprises the step of configuring the evaluation circuit to include an indicator that
17 provides an indication of whether the medical device is properly utilized to perform the simulated medical
18 procedure.

19 62.-87. (Canceled)

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1 88. (Previously Presented) A medical training simulator suitable for medical skills training and
2 evaluation, the medical training model comprising a simulated physiological structure and an evaluation
3 circuit including a conductive elastomer, the evaluation circuit including a first conductive segment and a
4 second conductive segment separated by a non conductive segment such that they are not electrically
5 coupled to each other, the first conductive segment and the second conductive segment being part of the
6 simulated physiological structure, said evaluation circuit being configured to provide data related to
7 proper execution of a simulated medical procedure being performed using the simulated physiological
8 structure when the non conductive segment is removed and the first conductive segment and the second
9 conductive segment are coupled together during the simulated medical procedure, thereby completing the
10 evaluation circuit and enabling the evaluation circuit to provide the data related to the proper execution of
11 the simulated medical procedure.

12 89. (Previously Presented) A medical training simulator suitable for medical skills training and
13 evaluation, the medical training model comprising a simulated physiological structure and an evaluation
14 circuit including a conductive elastomer, the evaluation circuit including a first conductive segment and a
15 second conductive segment are separated by a gap, such that they are not electrically coupled to each
16 other, the first conductive segment and the second conductive segment being part of the simulated
17 physiological structure, said evaluation circuit being configured to provide data related to proper
18 execution of a simulated medical procedure being performed using the simulated physiological structure
19 when either the first conductive segment or the second conductive segment are repositioned and placed in
20 contact with either the other of the first conductive segment or the other of the second conductive segment
21 during the simulated medical procedure, thereby completing the evaluation circuit and enabling the
22 evaluation circuit to provide the data related to the proper execution of the simulated medical procedure.

23 90. – 96. (Canceled)

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1 97. (Previously Presented) A physiological training and evaluation simulator suitable for training
2 and testing personnel, comprising:

3 (a) a simulated physiological structure; and
4 (b) an evaluation circuit including a conductive elastomer, at least a portion of the
5 evaluation circuit including the conductive elastomer being disposed within the simulated
6 physiological structure, the conductive elastomer enhancing a realism of the simulated physiological
7 structure, the portion of the evaluation circuit in the simulated physiological structure including a gap
8 separating a first conductive segment from a second conductive segment, such that proper execution
9 of a simulated medical procedure causes the gap between the first and second conductive segments to
10 be eliminated without applying pressure to an external surface of the simulated physiological
11 structure, thereby producing an indication that the simulated medical procedure has been properly
12 performed.

13 98. – 100. (Canceled)